WM-FS421

SERVICE MANUAL

E Model

Ver 1.0 2001. 04

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MF-WMFS421-114

SPECIFICATIONS

- **Frequency range**
  FM: 87.5 - 108 MHz
  AM: 530 - 1 710 kHz (North, Central and South America)
  531 - 1 602 kHz (Other countries)
- **Power requirements**
  3 V DC batteries R6 (size AA) × 2
- **Dimensions (w/h/d)**
  Approx. 107.3 × 123.3 × 51.5 mm (4 1/4 × 4 7/8 × 2 1/8 inches), excluding projecting parts and controls
- **Mass**
  Approx. 282 g (10.0 oz) (main unit only)
- **Supplied accessories**
  Stereo headphones or earphones (1)
  Belt clip (1)

Design and specifications are subject to change without notice.

Battery life (approximate hours) (JEITA*)

	Tape playback	Radio reception
Sony alkaline LR6 (SG)**	32	40
Sony R6P (SR)	9	14

* Measured value by the standard of JEITA (Japan Electronics and Information Technology Industries Association). (Using a Sony HF series cassette tape)
** When using Sony LR6 (SG) "STAMINA" alkaline dry batteries (produced in Japan).

Note

- The battery life may be shorter depending on the operating condition, the surrounding temperature and battery type.

RADIO CASSETTE PLAYER

9-873-121-11
2001D1600-1
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Sony Corporation
Personal Audio Company
Shinagawa Tec Service Manual Production Group

SONY®

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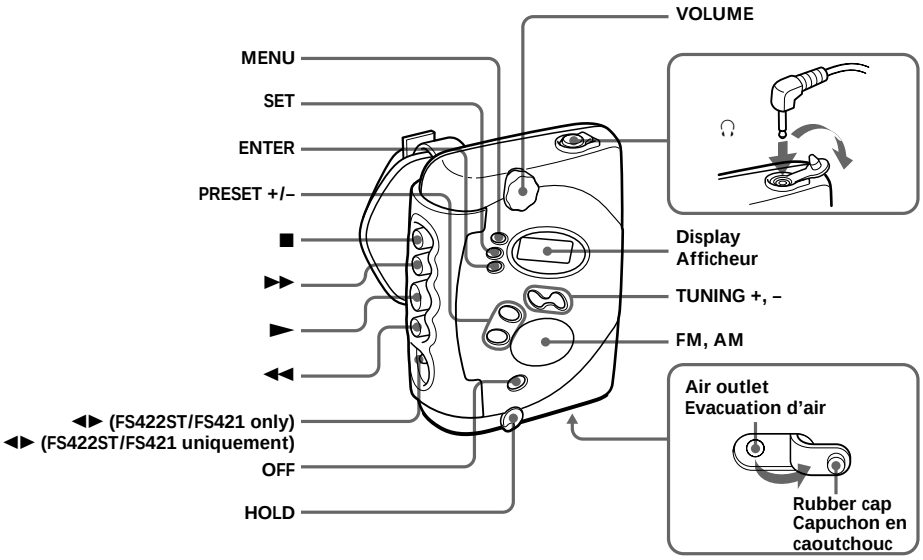
SECTION 1
GENERAL

This section is extracted from instruction manual.



Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

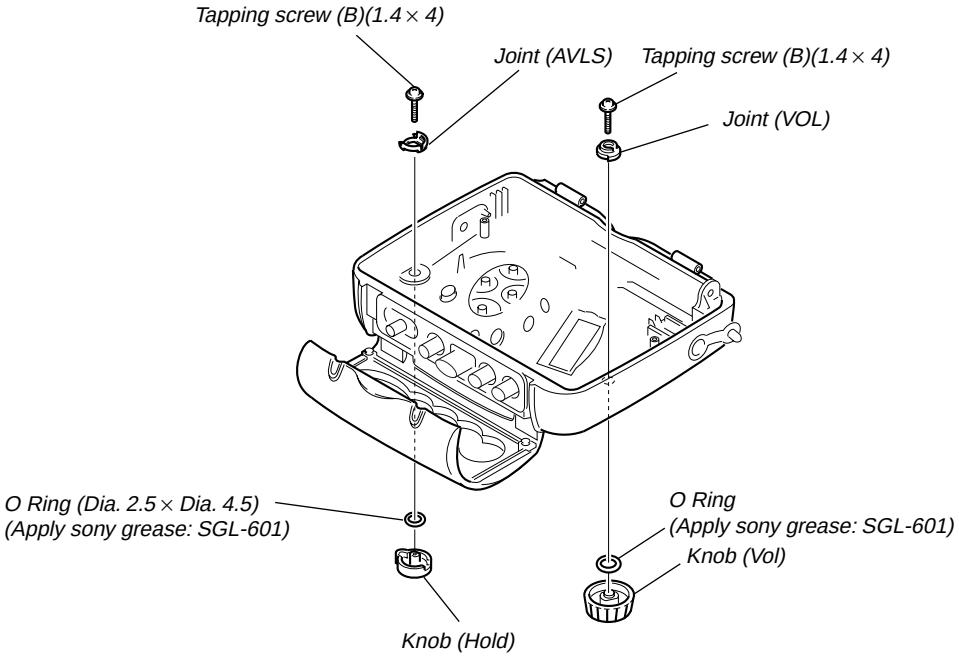
- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SECTION 2
SERVICE NOTE

WATER PROOF SECTION

Note *: In case the parts in the figure are removed for repair, treat them to protect from water drop following the instructions in the figure (spread grease, bond etc.)*

• Sony grease SGL-601 : 7-651-000-10



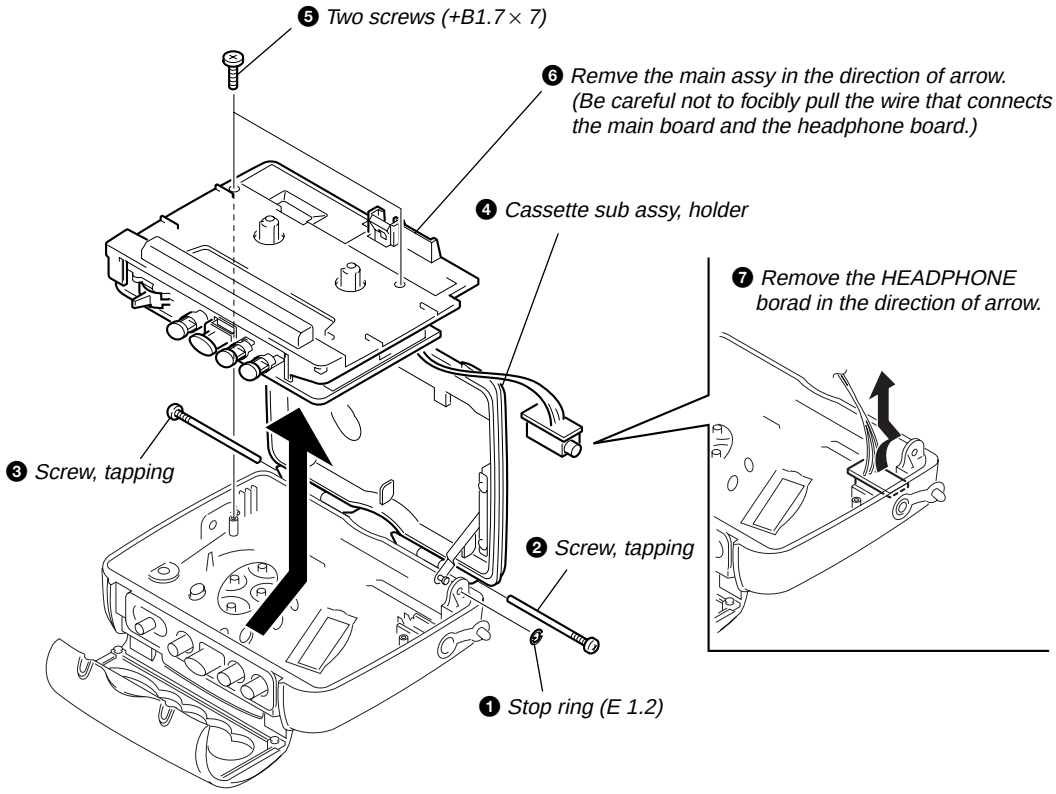
SECTION 3
DISASSEMBLY

Note : Disassemble the unit in the order as shown below.

Set → Main Assy → Chassis Sub Assy → MAIN Board and Mechanism Deck → Belt
→ Head, Magnetic (HP701)

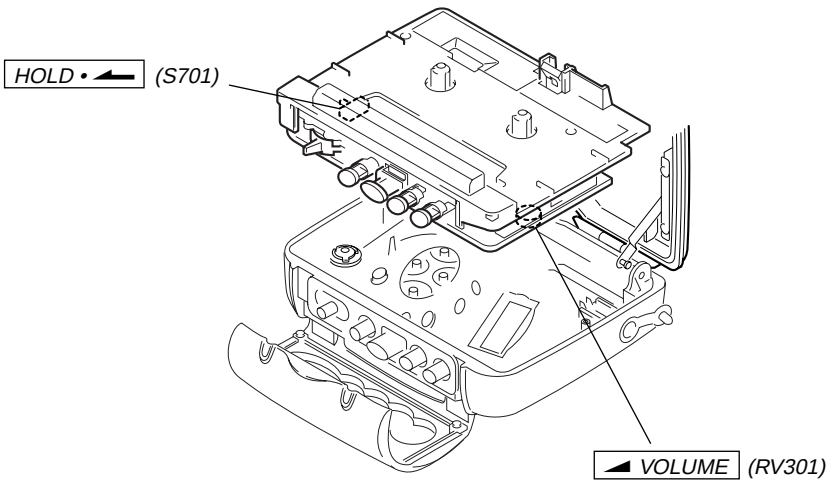
Note : Follow the disassembly procedure in the numerical order given.

3-1. MAIN ASSY

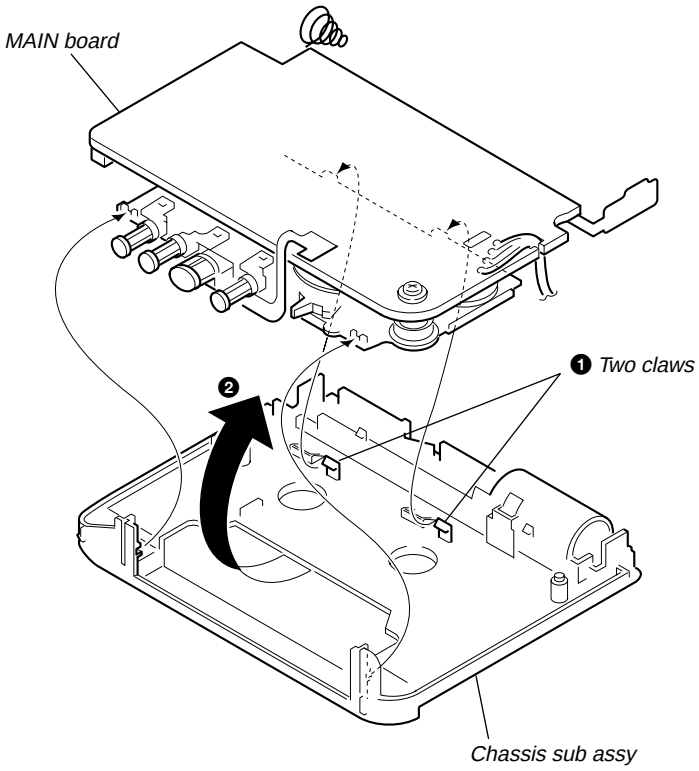

❺ Two screws (+B1.7× 7)
❻ Remve the main assy in the direction of arrow.
(Be careful not to focibly pull the wire that connects
the main board and the headphone board.)
❹ Cassette sub assy, holder
❼ Remove the HEADPHONE
borad in the direction of arrow.
❸ Screw, tapping
❷ Screw, tapping
❶ Stop ring (E 1.2)

CAUTION WHEN ASSEMBLING THE MAIN Assy

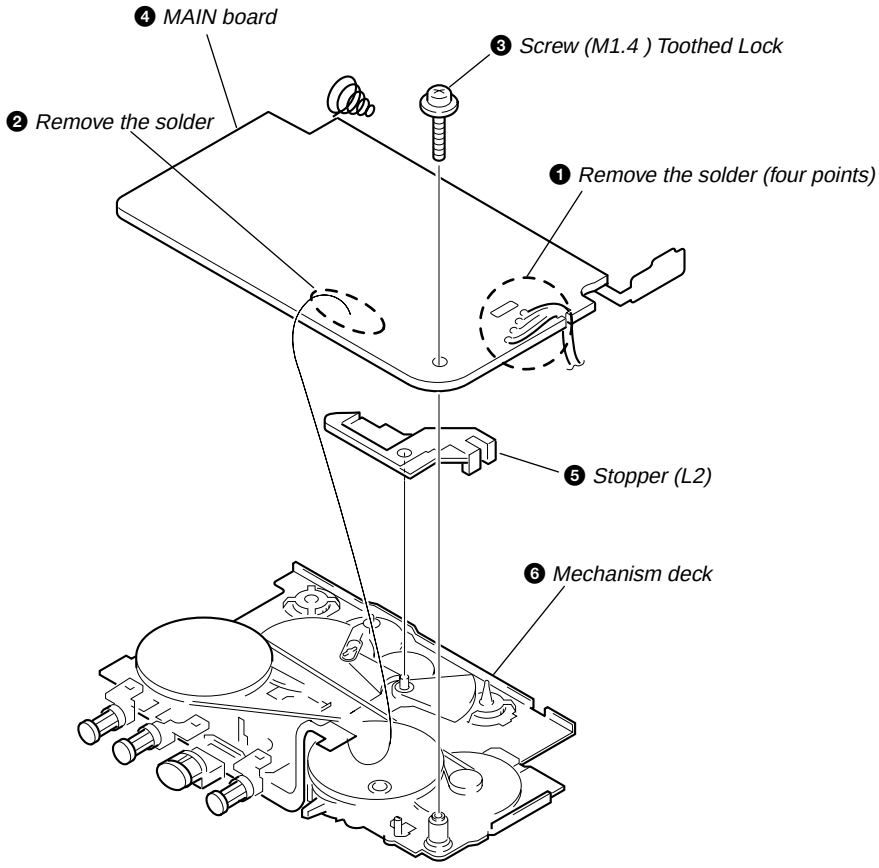
• Assemble the main Assy in a way that each switch mates with the corresponding knob each other.



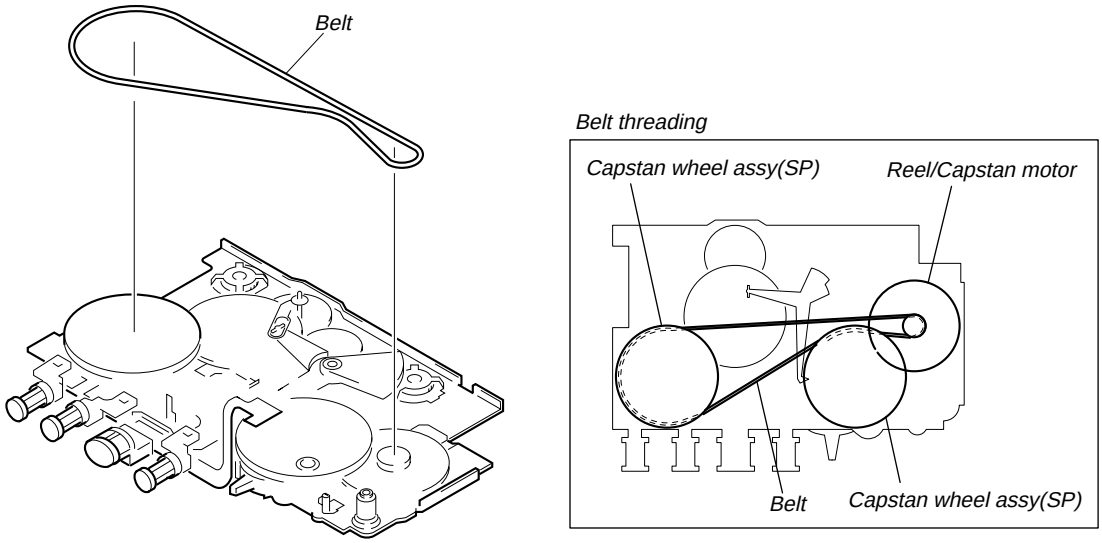
3-2. CHASSIS SUB ASSY



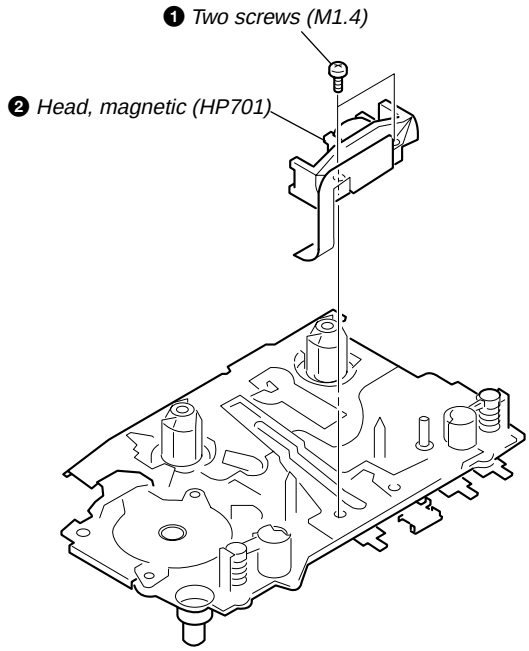
3-3. MAIN BOARD AND MECHANISM DECK



3-4. BELT



3-5. HEAD, MAGNETIC (HP701)



SECTION 4
MECHANICAL ADJUSTMENT

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   playback head　　pinch roller
   rubber belts　　capstan
2. Do not use a magnetized screwdriver for the adjustments.

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	2.0 to 4.1 N•m (20 to 42 g•cm) (0.27 to 0.58 oz•inch)
FWD Back Tension	CQ-102C	More tham 0.20 N•m (More than 2.0 g•cm) (More than 0.027 oz•inch)
FF, REW	CQ-201B	More tham 4.9 N•m (More than 50 g•cm) (More than 0.69 oz•inch)

SECTION 5
ELECTRICAL ADJUSTMENT

TAPE SECTION

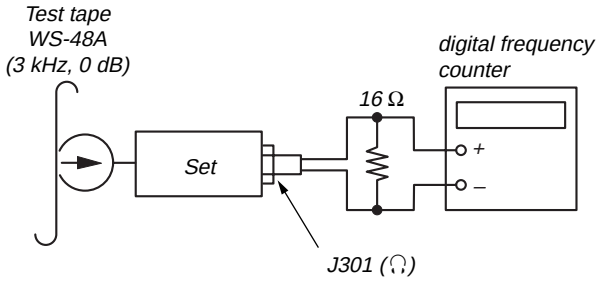
0 dB = 0.775 V

Test Tape

Tape	Signal	Used for
WS-48A	3 kHz, 0 dB	Tape speed adjustment

Tape Speed Adjustment

Procedure:
Mode: Playback



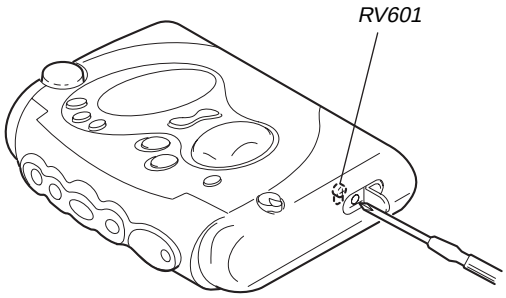
Adjustment Value: normal tape speed
Adjust the tape speed adjustment RV601, so that the freqency counter reading becomes 3,000Hz.

Specification Value:

Digital frequency counter
2,970 to 3,030 Hz

Frequency difference between the beginning and the end of the tape should be within 1.5 % (45 Hz).

Adjustment Location:

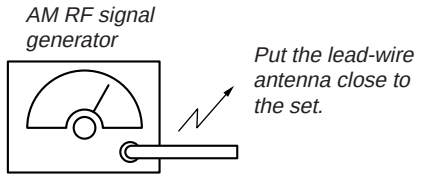


TUNER SECTION

0 dB = 1 µV

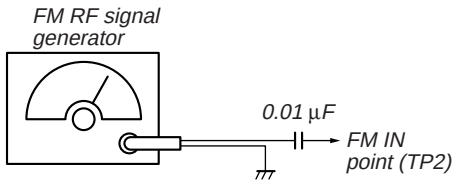
• Switch Location
VOLUME : MAX
MEGA BASS : OFF
AVLS : NORMAL

BAND: AM

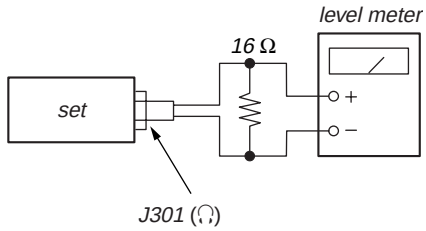


30 % amplitude modulation by 400 Hz signal.
Output level : as low as possible

BAND : FM



75 kHz(100 %) amplitude modulation by 1kHz signal.
Output level: as low as possible



- Repeat the procedures in each adjustment several times for the maximum level meter indication.
- The frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter	
RV2	1,000 kHz

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a 1.1V ± 0.1Vde reading on digital voltmeter	
L7	530 kHz

AM TRACKING ADJUSTMENT	
Adjust for maximum reading on level meter.	
L3	620 kHz
CT1	1,400 kHz

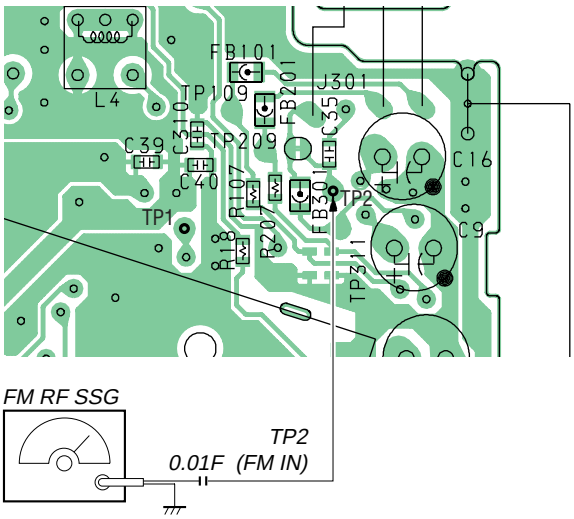
FM TRACKING ADJUSTMENT	
Adjust for maximum reading on level meter.	
L4	87.5 MHz

Adjustment Location: Main board (See page 9)

FM VCO Adjustment

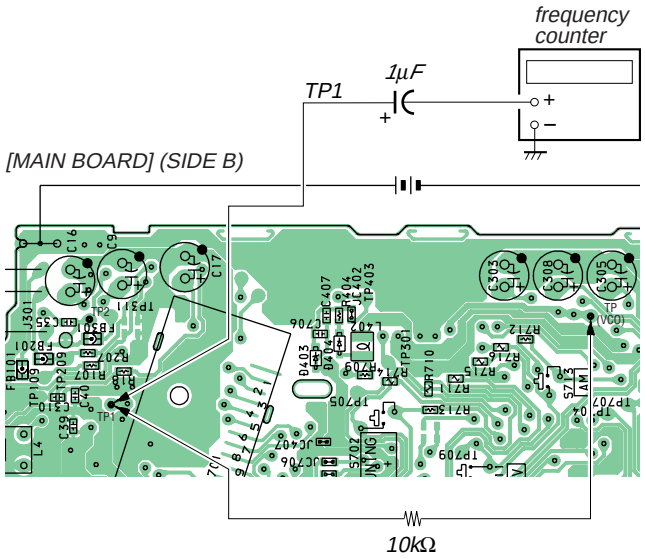
Procedure:

[MAIN BOARD] (SIDE B)



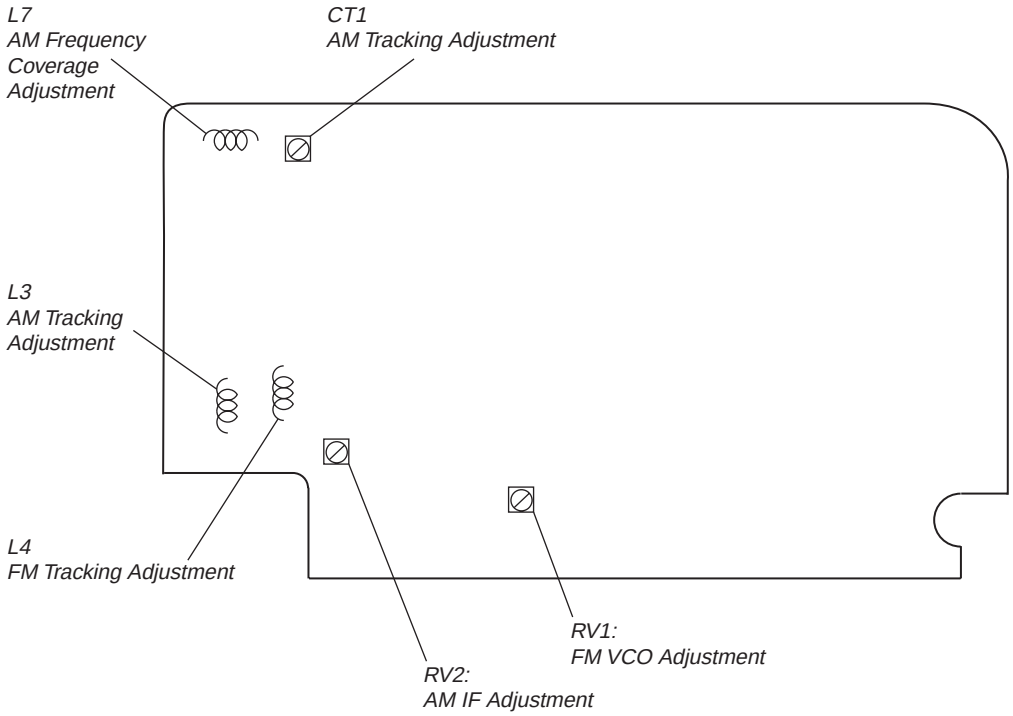
Carrier frequency : 96MHz
Deviation : none
Output level : 562 µV(55dB)

1. Connect the resistor 10k between TP1 and TP (VCO).
2. Connect the frequency counter to TP1 (IC1 pin).
3. Set FUNCTION switch to FM.
4. Tune the set in 96MHz.
5. Adjust RV1 so that the reading on the frequency counter becomes 76 kHz.
   Specifications: 75 kHz-77 kHz

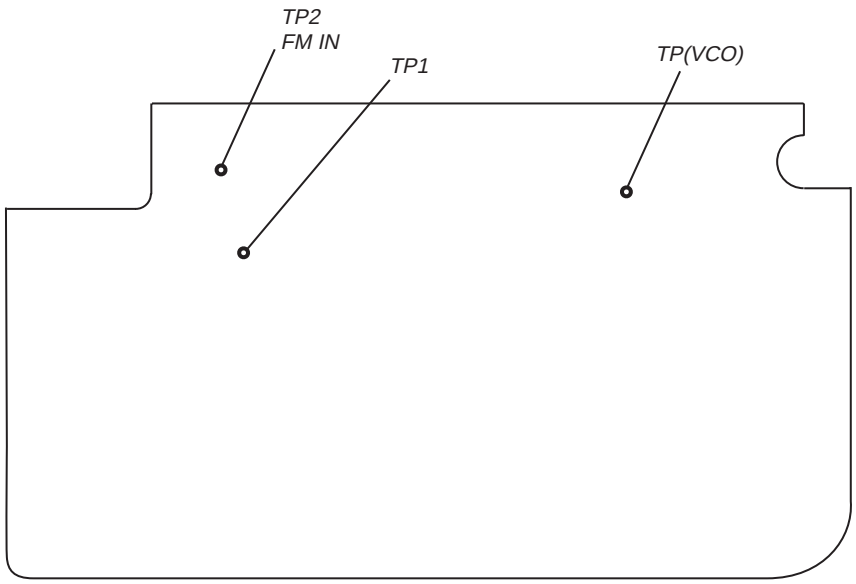


[MAIN BOARD]

— Component side —



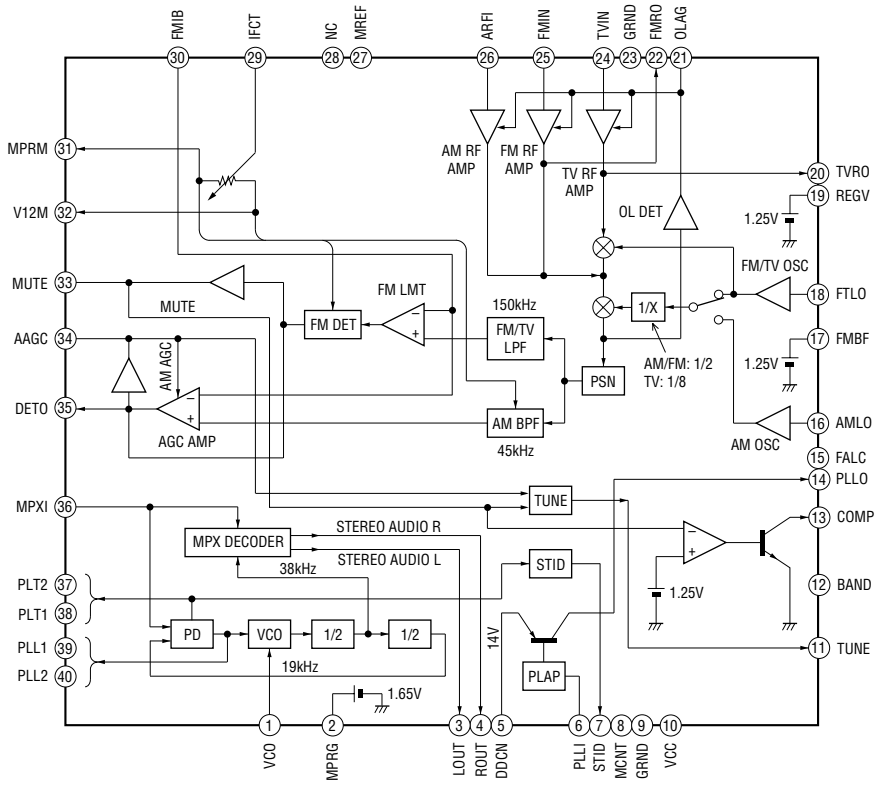
— Conductor side —



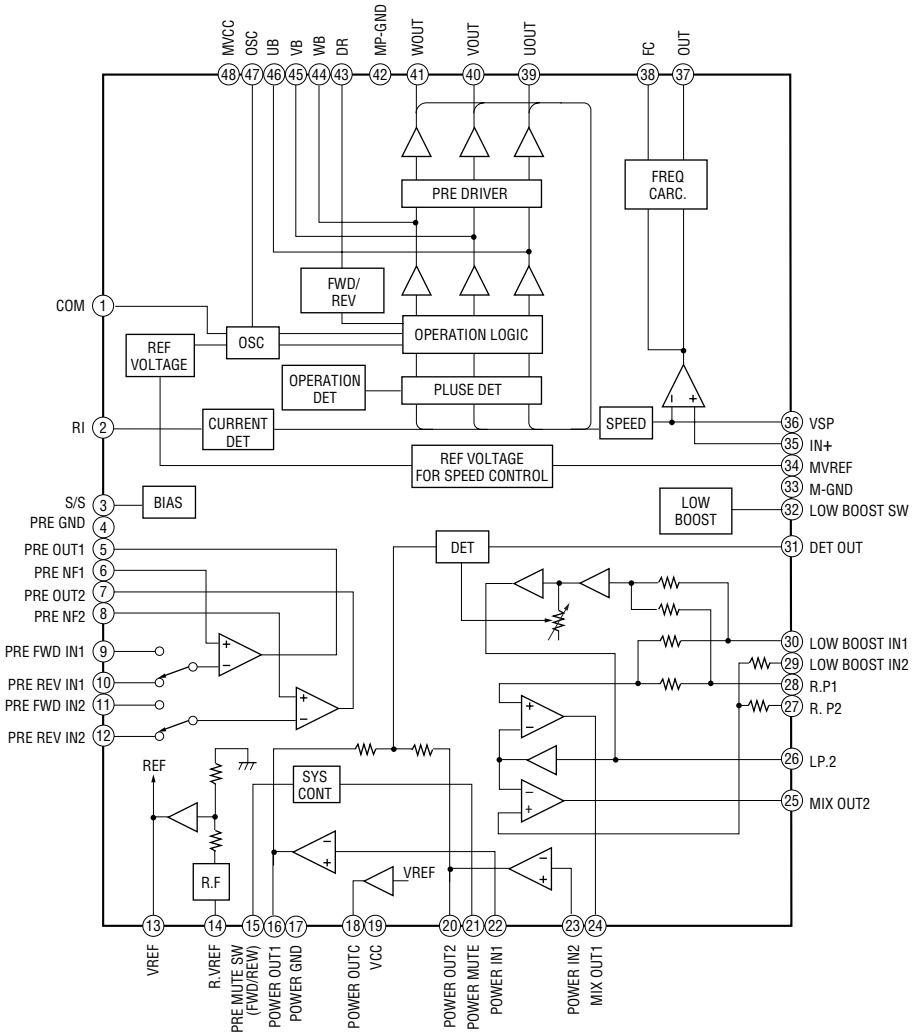
SECTION 6
DIAGRAMS

6-1. IC BLOCK DIAGRAMS

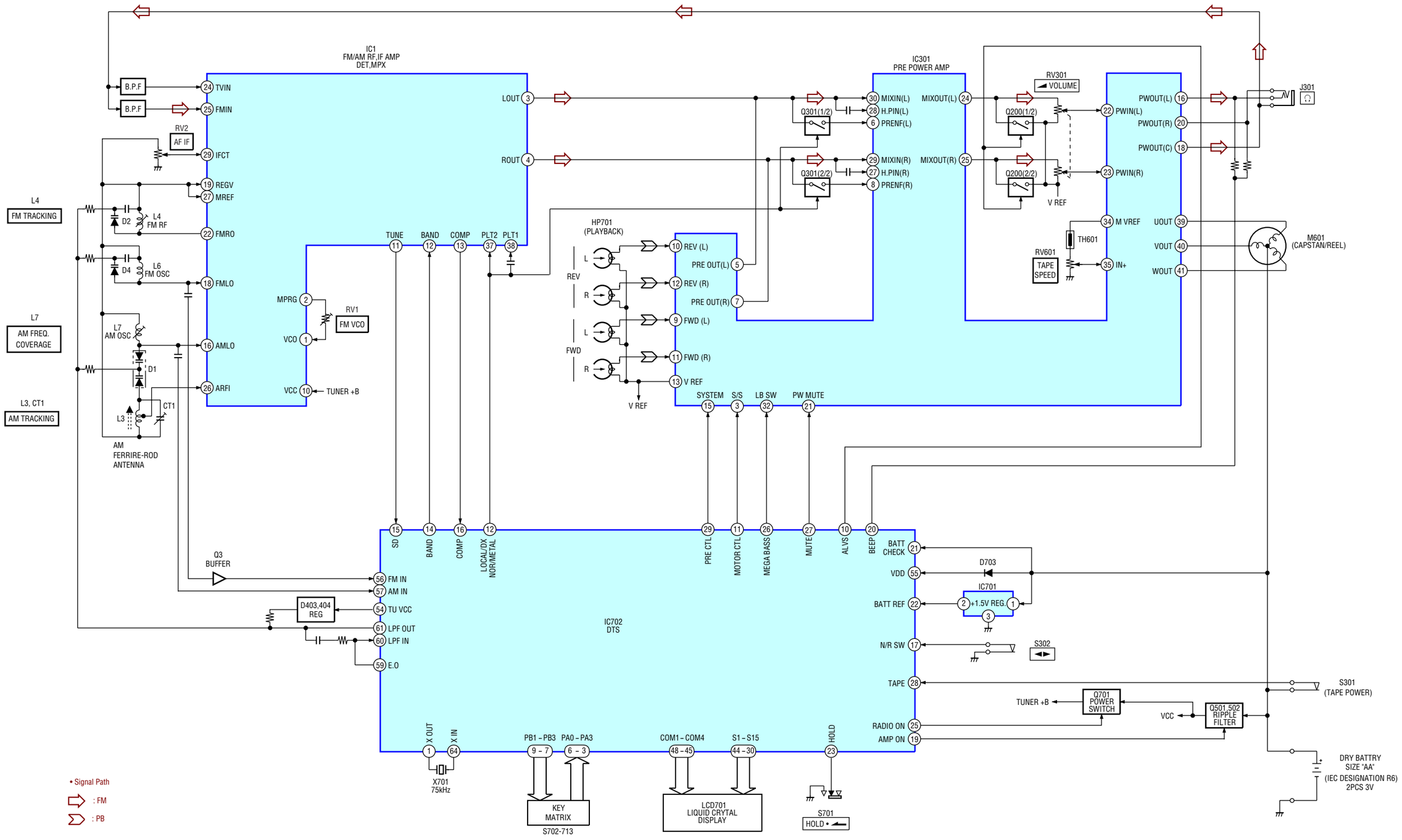
IC1 CXA1960Q



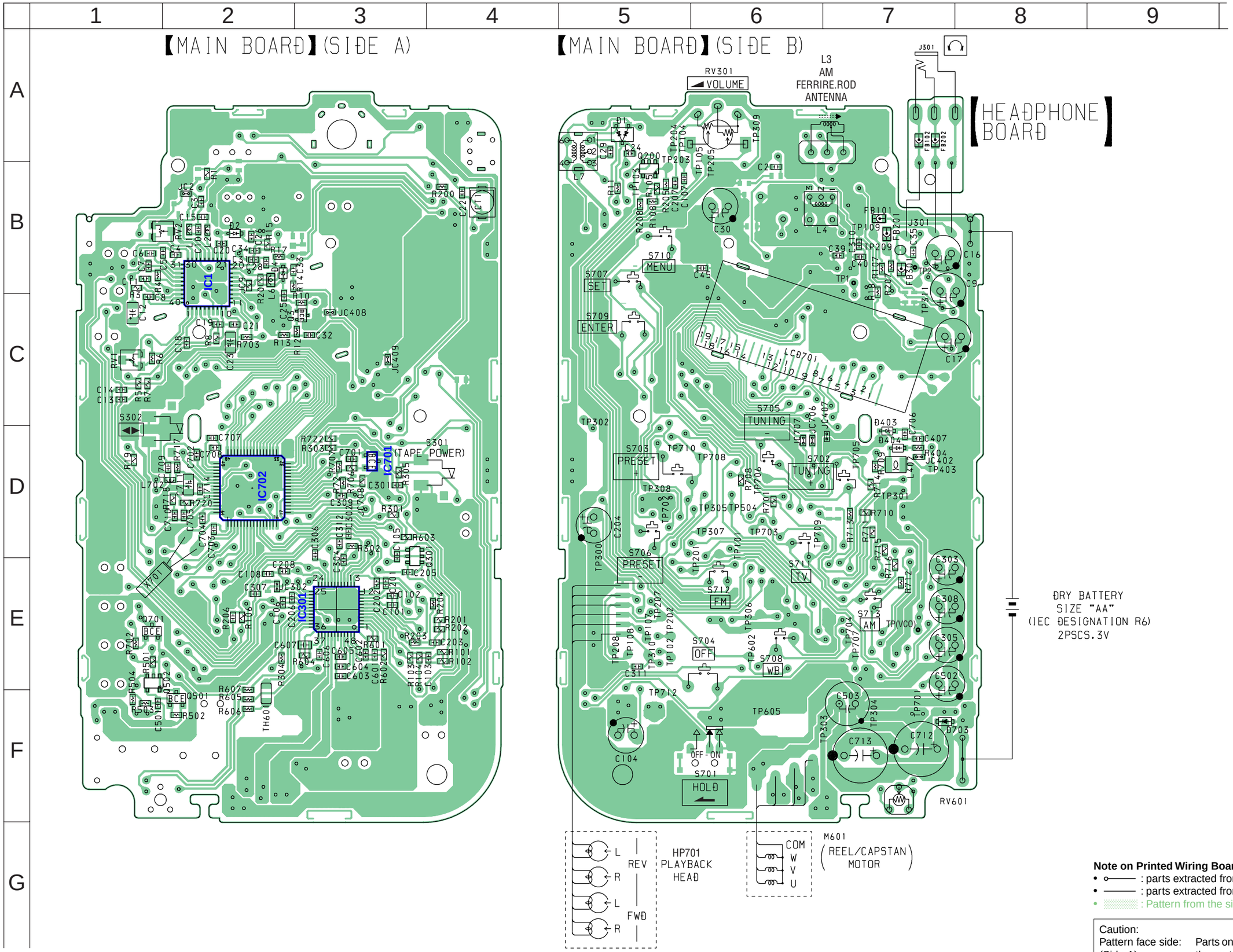
IC301 LB8115W-NA-TLM



6-2. BLOCK DIAGRAM



6-3. PRINTED WIRING BOARD



- **Semiconductor Location**

Ref. No.	Location
D1	A-5
D2	B-2
D4	B-2
D403	D-7
D404	D-7
D701	F-7
IC1	B-2
IC301	E-3
IC701	D-3
IC702	D-2
Q3	C-3
Q200	A-5
Q301	E-3
Q501	F-2
Q502	E-1
Q701	E-1

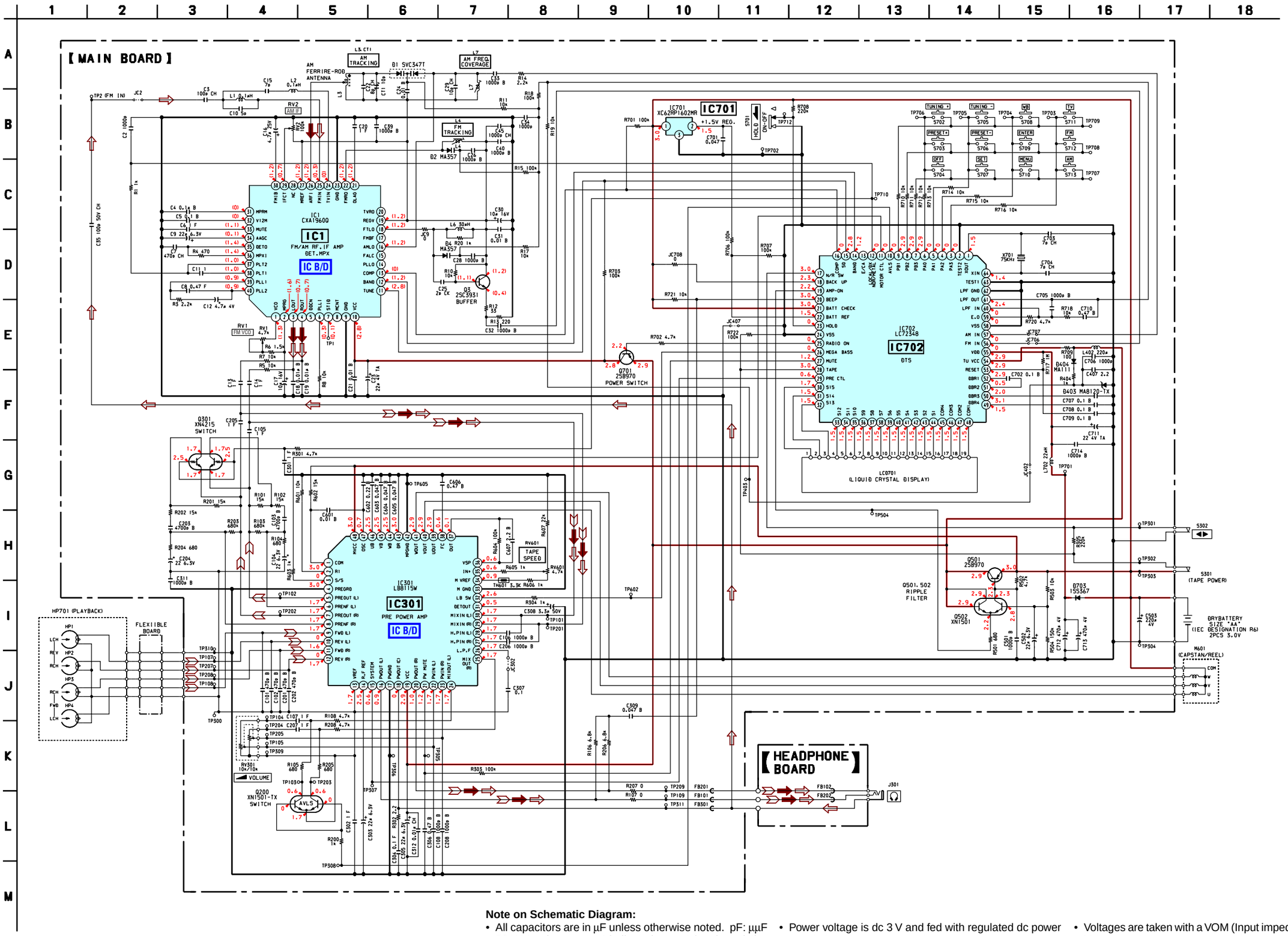
Note on Printed Wiring Board:

- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ▒▒▒ : Pattern from the side which enables seeing.

Caution:	
Pattern face side: (Side A)	Parts on the pattern face side seen from the parts face are indicated.
Parts face side: (Side B)	Parts on the parts face side seen from the pattern face are indicated.

6-4. SCHEMATIC DIAGRAM

• Refer to page 10 for IC Block Diagrams.
• Refer to page 17 for IC Pin Function.



Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.
- ▬ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 3 V and fed with regulated dc power supply from battery terminal.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PB
  ( ) : FM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ➡ : AM
  ⇨ : PB

6-5. IC PIN FUNCTION DESCRIPTION

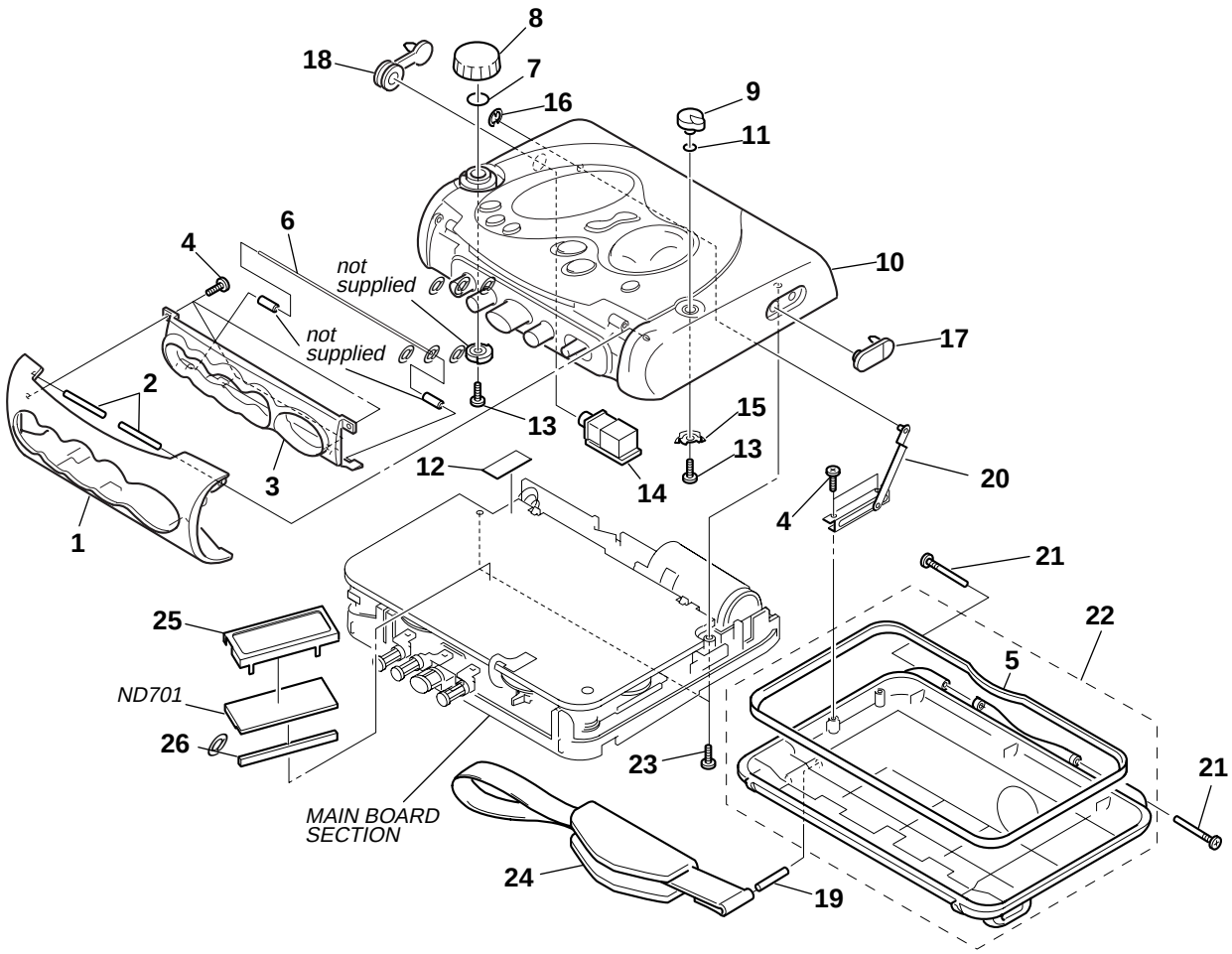
• MAIN BOARD IC702 (DTC) LC72348W-9906

Pin No.	Pin Name	I/O	Description
1	XOUT	O	Crystal output
2	TEST2	—	GND
3-6	PA0-PA3	I	Key input
7-9	PB1-PB3	O	Key output
10	AVLS	O	AVLS output
11	MOTOR CTL	O	MOTOR control
12	LOCAL/DX/NOR/METAL	O	NOMAL/METAL(DX/LOCAL) select output
13	E/CA	I	Not used
14	BAND	O	Band output
15	SD	I	SD input
16	COMP	I	COMP input
17	N/R SW	I	TAPE FWD/REV input switch
18	BACK UP	I	Backup input
19	AMP-ON	O	AMP-ON output
20	BEEP	O	Beep output
21	BATT CHECK	I	Backup input during halt
22	BATT REF	I	POWER CHECK input
23	HOLD	I	HOLD Key input
24	VSS	—	GND
25	RADIO ON	O	RADIO ON/OFF control
26	MEGA BASS	O	MEGA BASS ON/OFF control
27	MUTE	O	Mute output
28	TAPE	I	TAPE input
29	PRE CTL	O	PREAMP control
30-44	S1-S15	O	segment output
45-48	COM1-COM4	O	Common output
49-52	DBR1-DBR4	—	LCD power supply
53	RESET	I	RESET input
54	TU VCC	I	IF input
55	VDD	—	Positive polarity
56	FM IN	I	Input to FM system
57	AM IN	I	Input to AM system
58	VSS	—	GND
59	E.O	O	Error output
60	LPF IN	I	LPF input
61	LPF OUT	O	LPF output
62	LPF GND	—	GND
63	TEST1	—	GND
64	XIN	I	Input to crystal

SECTION 7
EXPLODED VIEWS

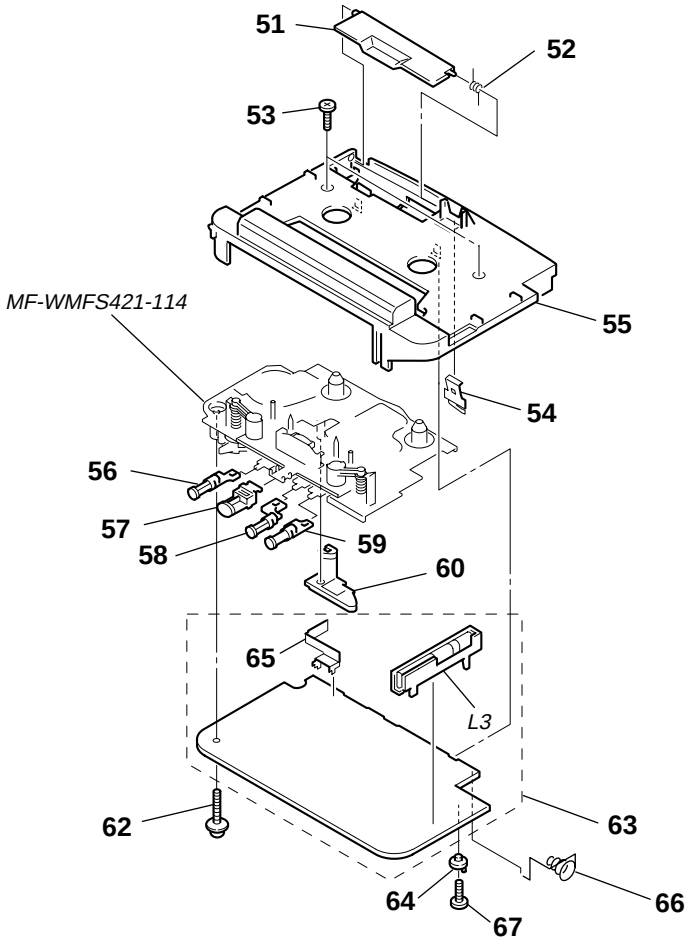
NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

7-1. CABINET ASSY SECTION



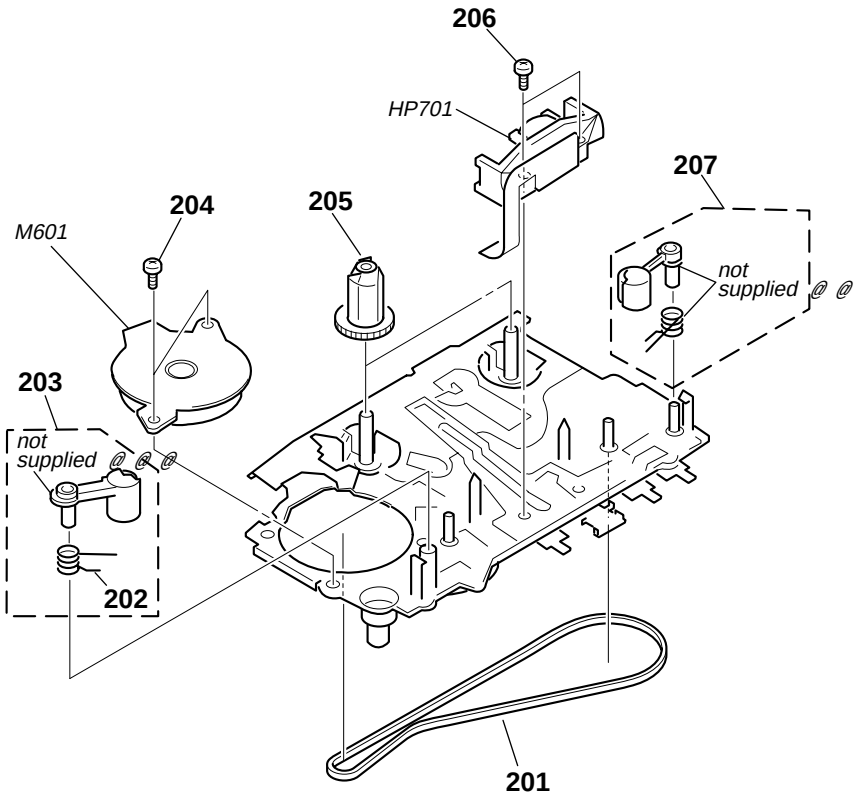
Ref. No.	Part No.	Description	Remarks
1	3-224-944-01	BUCKLE	
2	3-224-946-01	SHAFT (BUCKLE)	
3	3-224-971-01	PLATE, LOCK	
4	3-318-203-62	SCREW (B1.7X4), TAPPING	
5	3-224-941-01	PACKING (MD.RVS)	
6	3-224-945-01	SHAFT (ROLLER)	
7	3-012-927-01	RING, O	
8	3-224-937-01	KNOB (VOL)	
9	3-224-938-01	KNOB (HOLD)	
10	X-3380-327-1	CABINET (REAR) SUB ASSY	
11	3-326-560-11	RING (DIA. 2.5XDIA. 4.5), O	
12	3-018-075-01	SPACER	
13	3-318-201-51	SCREW (B) (1.4X4), TAPPING	
* 14	1-681-951-01	HEADPHONE BOARD	
15	3-227-296-01	JOINT (HOLD)	
16	7-624-101-04	STOP RING 1.2 (E TYPE)	
17	3-922-447-01	PACKING, DC JACK	
18	3-386-371-01	PACKING, HP JACK	
19	7-626-311-81	SPRING-PIN 1.6X18	
20	X-3369-989-1	ARM ASSY	
21	3-386-373-01	SCREW, TAPPING	
22	X-3380-329-1	CASSETTE SUB ASSY, LID	
23	3-318-203-32	SCREW (B1.7), TAPPING	
24	3-228-185-01	STRAP, HAND	
25	3-224-947-01	HOLDER (LCD)	
26	3-040-176-01	RUBBER, CONDUCTIVE	
ND701	1-804-256-11	LIQUID CRYSTAL DISPLAY	

7-2. MAIN BOARD SECTION



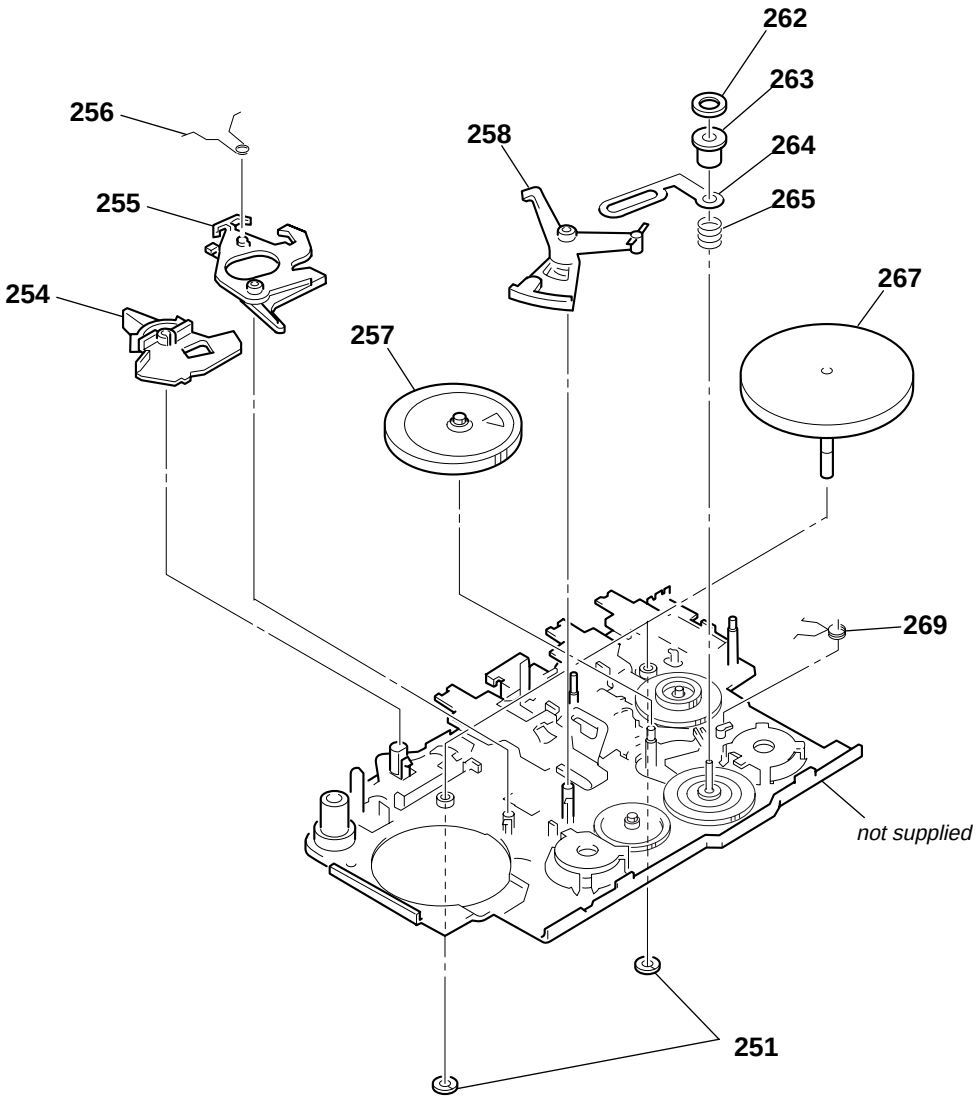
Ref. No.	Part No.	Description	Remarks
51	3-227-295-01	LID, BATTERY CASE	
52	3-231-465-01	SPRING, TORSION	
53	3-318-203-32	SCREW (B1.7), TAPPING	
54	3-227-301-01	SPRING (CASSETTE)	
55	3-224-933-01	CHASSIS	
56	3-227-300-01	BUTTON (REW)	
57	3-227-297-01	BUTTON (PLAY)	
58	3-227-299-01	BUTTON (FF)	
59	3-227-298-01	BUTTON (STOP)	
60	3-224-939-01	STOPPER (L2)	
62	3-015-285-01	SCREW (M1.4),TOOTHED LOCK (WH)	
* 63	A-3021-390-A	MAIN BOARD, COMPLETE	
64	3-221-310-01	LEVER (VOL) (B)	
65	3-921-878-01	TERMINAL BOARD, BATTERY	
66	3-224-948-01	TERMINAL (-), BATTERY	
67	3-318-201-51	SCREW (B) (1.4X4), TAPPING	
L3	1-754-166-11	ANTENNA, FERRITE-ROD	

7-3. MECHANISM DECK SECTION-1 (MF-WMFS421-114)



Ref. No.	Part No.	Description	Remarks
201	3-938-657-01	BELT	
202	3-920-997-01	SPRING (PINCH R)	
203	X-3369-748-1	PINCH LEVER (R) ASSY	
204	3-704-197-01	SCREW (M1.4), SPECIAL HEAD	
205	3-024-223-11	GEAR (REEL-2)	
206	3-704-197-71	SCREW (M1.4)	
207	X-3369-749-1	PINCH LEVER (N) ASSY	
HP701	1-500-648-11	HEAD, MAGNETIC (PLAYBACK)	
M601	1-763-683-11	MOTOR, DC(REEL/CAPSTAN)(WITH PULLEY)	

7-4. MECHANISM DECK SECTION-2
(MF-WMFS421-114)



Ref. No.	Part No.	Description	Remarks
251	3-921-797-01	WASHER	
254	3-021-786-01	LEVER (FS), D SELECTION	
255	3-921-052-11	LEVER (A), DETECTION	
256	3-920-994-11	SPRING (D SELECTION)	
257	X-3376-169-1	CLUTCH ASSY	
258	3-929-419-01	LEVER (BR), DETECTION	

Ref. No.	Part No.	Description	Remarks
262	3-728-091-01	WASHER, STOPPER	
263	3-923-530-11	SLEEVE (M)	
264	3-921-335-01	WASHER, LEVER	
265	3-920-990-01	SPRING (UD), COMPRESSION	
267	X-3372-619-1	WHEEL ASSY (NP), CAPSTAN	
269	3-933-324-01	SPRING (FR LEVER)	

MAIN

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
*	A-3021-390-A	MAIN BOARD, COMPLETE			
		**********			
	3-221-309-01	LEVER (VOL) (A)			
	4-223-413-01	SCREW (M1.4X3)			
		< CAPACITOR >			
C2	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C3	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C4	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C5	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C6	1-115-156-11	CERAMIC CHIP	1uF		10V
C7	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C8	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C9	1-126-514-11	ELECT	22uF	20.00%	6.3V
C10	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C11	1-115-156-11	CERAMIC CHIP	1uF		10V
C12	1-107-686-11	TANTALUM CHIP	4.7uF	20%	4V
C13	1-115-156-11	CERAMIC CHIP	1uF		10V
C14	1-115-156-11	CERAMIC CHIP	1uF		10V
C15	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C16	1-126-794-11	ELECT	4.7uF	20.00%	25V
C17	1-126-791-11	ELECT	10uF	20.00%	16V
C18	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C19	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C20	1-115-156-11	CERAMIC CHIP	1uF		10V
C21	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C22	1-162-913-11	CERAMIC CHIP	8PF	0.50PF	50V
C23	1-104-847-11	TANTAL. CHIP	22uF	20.00%	4V
C24	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C25	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C26	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C28	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C29	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C30	1-126-791-11	ELECT	10uF	20.00%	16V
C31	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C32	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C33	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C34	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C35	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C39	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C40	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C45	1-115-416-11	CERAMIC CHIP	0.001uF	5.00%	25V
C101	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C102	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C103	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C104	1-126-153-11	ELECT	22uF	20%	6.3V
C105	1-115-156-11	CERAMIC CHIP	1uF		10V
C106	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C107	1-115-156-11	CERAMIC CHIP	1uF		10V
C108	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C201	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C202	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C203	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C204	1-126-153-11	ELECT	22uF	20%	6.3V
C205	1-115-156-11	CERAMIC CHIP	1uF		10V
C206	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C207	1-115-156-11	CERAMIC CHIP	1uF		10V
C208	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C301	1-115-156-11	CERAMIC CHIP	1uF		10V
C302	1-115-156-11	CERAMIC CHIP	1uF		10V
C303	1-126-514-11	ELECT	22uF	20.00%	6.3V
C304	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C305	1-126-514-11	ELECT	22uF	20.00%	6.3V
C306	1-117-863-11	CERAMIC CHIP	0.47uF	10.00%	6.3V
C307	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C308	1-115-873-11	ELECT	3.3uF	20.00%	50V
C309	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C311	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C312	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C407	1-135-834-11	CERAMIC CHIP	2.2E+06PF	6.3V	
C501	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C502	1-126-514-11	ELECT	22uF	20.00%	6.3V
C503	1-126-176-11	ELECT	220uF	20%	10V
C601	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C602	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V
C603	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C604	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C605	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C606	1-117-863-11	CERAMIC CHIP	0.47uF	10.00%	6.3V
C607	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C701	1-164-361-11	CERAMIC CHIP	0.047uF	16V	
C702	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C703	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C704	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C705	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C706	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C707	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C708	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C709	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C710	1-117-863-11	CERAMIC CHIP	0.47uF	10.00%	6.3V
C711	1-104-847-11	TANTAL. CHIP	22uF	20.00%	4V

MAIN

Ref. No.	Part No.	Description			Remarks
C712	1-128-110-11	ELECT	470uF	20.00% 4V	
C713	1-128-110-11	ELECT	470uF	20.00% 4V	
C714	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
		< TRIMMER >			
CT1	1-141-422-11	CAP, ADJ 10PF			
		< DIODE >			
D1	8-759-072-60	DIODE SVC347T-TL			
D2	8-719-050-97	DIODE MA357(Q)-(TX).SO			
D4	8-719-050-97	DIODE MA357(Q)-(TX).SO			
D403	8-719-158-49	DIODE MA8120-TX			
D404	8-719-404-50	DIODE MA111-TX			
D703	8-719-049-09	DIODE 1SS367-T3SONY			
		< FERRITE BEAD >			
FB101	1-500-245-11	FERRITE	0uH		
FB201	1-500-245-11	FERRITE	0uH		
FB301	1-500-245-11	FERRITE	0uH		
		< IC >			
IC1	8-752-073-35	IC CXA1960Q			
IC301	8-759-665-91	IC LB8115W-NA-TLM			
IC701	8-759-457-70	IC XC62RP1602MR			
IC702	8-759-829-35	IC LC72348W-CFX1726			
		<JUMPER>			
JC2	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC9	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC302	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC402	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC407	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC408	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC409	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC706	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC707	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC708	1-216-864-11	METAL CHIP	0	5% 1/16W	
		< COIL >			
L1	1-412-967-31	INDUCTOR	0.1uH		
L2	1-412-967-31	INDUCTOR	0.1uH		
L3	1-754-166-11	ANTENNA, FERRITE-ROD(MW)			
L4	1-424-763-11	COIL, RF (FM)			
L6	1-469-781-11	INDUCTOR	30nH		
L7	1-419-540-11	COIL, OSCILLATION (AM)			
L402	1-412-033-11	INDUCTOR CHIP	220uH		
L702	1-412-995-21	INDUCTOR	22uH		
		< TRANSISTOR >			
Q3	8-729-423-52	TRANSISTOR	2SC3931-C-TX		
Q200	8-729-402-13	TRANSISTOR	XN1501-TX		
Q301	8-729-422-54	TRANSISTOR	XN4215-TX		
Q501	8-729-046-89	TRANSISTOR	2SB970-S(TX).S0		
Q502	8-729-402-13	TRANSISTOR	XN1501-TX		
Q701	8-729-046-89	TRANSISTOR	2SB970-S(TX).S0		

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R1	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R3	1-216-825-11	METAL CHIP	2.2K	5% 1/16W	
R4	1-216-817-11	METAL CHIP	470	5% 1/16W	
R5	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R6	1-216-823-11	METAL CHIP	1.5K	5% 1/16W	
R7	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R8	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R10	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R11	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R12	1-216-803-11	METAL CHIP	33	5% 1/16W	
R13	1-216-813-11	METAL CHIP	220	5% 1/16W	
R14	1-216-825-11	METAL CHIP	2.2K	5% 1/16W	
R15	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R17	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R18	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R19	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R20	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R101	1-216-835-11	METAL CHIP	15K	5% 1/16W	
R102	1-216-835-11	METAL CHIP	15K	5% 1/16W	
R103	1-216-855-11	METAL CHIP	680K	5% 1/16W	
R104	1-216-819-11	METAL CHIP	680	5% 1/16W	
R105	1-216-819-11	METAL CHIP	680	5% 1/16W	
R106	1-216-831-11	METAL CHIP	6.8K	5% 1/16W	
R107	1-216-864-11	METAL CHIP	0	5% 1/16W	
R108	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R200	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R201	1-216-835-11	METAL CHIP	15K	5% 1/16W	
R202	1-216-835-11	METAL CHIP	15K	5% 1/16W	
R203	1-216-855-11	METAL CHIP	680K	5% 1/16W	
R204	1-216-819-11	METAL CHIP	680	5% 1/16W	
R205	1-216-819-11	METAL CHIP	680	5% 1/16W	
R206	1-216-831-11	METAL CHIP	6.8K	5% 1/16W	
R207	1-216-864-11	METAL CHIP	0	5% 1/16W	
R208	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R301	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R302	1-216-789-11	METAL CHIP	2.2	5% 1/16W	
R303	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R304	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R305	1-216-849-11	METAL CHIP	220K	5% 1/16W	
R404	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R501	1-216-819-11	METAL CHIP	680	5% 1/16W	
R502	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R503	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R504	1-216-847-11	METAL CHIP	150K	5% 1/16W	
R601	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R602	1-216-835-11	METAL CHIP	15K	5% 1/16W	
R603	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R604	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R605	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R606	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R607	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R701	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R702	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R703	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R706	1-216-845-11	METAL CHIP	100K	5% 1/16W	

MAIN HEADPHONE

Ref. No.	Part No.	Description			Remarks
R707	1-216-845-11	METAL CHIP	100K	5%	1/16W
R708	1-216-849-11	METAL CHIP	220K	5%	1/16W
R709	1-216-809-11	METAL CHIP	100	5%	1/16W
R710	1-216-833-11	METAL CHIP	10K	5%	1/16W
R711	1-216-833-11	METAL CHIP	10K	5%	1/16W
R712	1-216-833-11	METAL CHIP	10K	5%	1/16W
R713	1-216-833-11	METAL CHIP	10K	5%	1/16W
R714	1-216-833-11	METAL CHIP	10K	5%	1/16W
R715	1-216-833-11	METAL CHIP	10K	5%	1/16W
R716	1-216-833-11	METAL CHIP	10K	5%	1/16W
R717	1-216-857-11	METAL CHIP	1M	5%	1/16W
R718	1-216-833-11	METAL CHIP	10K	5%	1/16W
R720	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R721	1-216-833-11	METAL CHIP	10K	5%	1/16W
R722	1-216-845-11	METAL CHIP	100K	5%	1/16W
		< VARIABLE RESISTOR >			
RV1	1-223-258-11	RES, CARBON ADJ VAR 4.7K			
RV2	1-223-278-11	RES, CARBON ADJ VAR 100K			
RV301	1-225-184-11	RES, VAR, CARBON 10K/10K(◢VOLUME)			
RV601	1-241-916-11	RES, ADJ, CARBON 4.7K(TAPE SPEED)			
		< SWITCH >			
S301	1-771-040-21	SWITCH, PUSH(TAPE POWER)			
S302	1-771-040-21	SWITCH, PUSH(◀▶)			
S701	1-771-586-41	SWITCH, SLIDE(HOLD OFF-ON)			
		< THERMISTOR >			
TH601	1-803-751-21	THERMISTOR, POSITIVE			
		< VIBRATOR >			
X701	1-579-615-11	VIBRATOR, CRYSTAL(75kHz)			

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Ref. No.	Part No.	Description	Remarks
*	1-681-169-11	HEADPHONE BOARD	
		**********	
*	1-757-684-11	WIRE (H/P MAIN PWB)	
		< FERRITE BEAD >	
FB102	1-500-245-11	FERRITE 0uH	
FB202	1-500-245-11	FERRITE 0uH	
		< JACK >	
J301	1-778-224-11	JACK (SMALL TYPE) (WATERPROOF)(🎧)	

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		MISCELLANEOUS	
		**********	
HP701	1-500-648-11	HEAD, MAGNETIC (PLAYBACK)	
M601	1-763-683-11	MOTOR, DC(REEL/CAPSTAN)(WITH PULLEY)	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-221-757-11	CLIP, BELT	
	3-229-657-22	MANUAL, INSTRUCTION (ENGLISH,FRENCH,SPANISH,PORTUGUESE)	
	8-953-284-91	HEADPHONE MDR-W014LP	

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2001.04	New